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XXVIII.—*New and little-known Tipulidæ, chiefly from Formosa.* By F. W. EDWARDS, B.A., F.E.S.

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[Plate XII.]

I RECENTLY received for examination from Dr. T. Shiraki, Chief Entomologist at the Agricultural Experiment Station in Formosa, a collection of Tipulidæ from that island. So far as I am aware, only seven species of crane-flies have hitherto been recorded from Formosa, and it is therefore not surprising that this collection, the results of the study of which are set forth below, contained a large proportion of new and interesting forms. The types of all the new Formosan species described here, with the exception of that of *Tipula shirakii*, have been generously presented to the British Museum collection by Dr. Shiraki. Descriptions of a few other related forms already in the Museum's possession have been included. Most of the new species from Formosa were collected at Arisan, a mountain locality 8000 feet above sea-level.

*LIMNOBIINÆ.*

LIMNOBIINI.

*Dicranomyia fullowayi*, Alex.

2 ♀, Arisan, 10. x. 1912 (*I. Nitobe*).

These specimens agree sufficiently well with Alexander's  
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description (Can. Ent. 1915, p. 79). This and *D. punctulata*, Meij., are evidently closely allied, the latter differing chiefly in its thoracic markings.

*Dicranomyia alticola*, sp. n. (Pl. XII. fig. 1.)

*Head* blackish, rather shining, rostrum and palpi black, antennæ dark brown. Two or three basal joints of the flagellum nearly spherical, remainder gradually becoming more elongate, each bearing two or three hairs near the base which are not much longer than the joints. *Thorax* shining ochreous; pronotum and central area of front half of præscutum brownish; pleuræ lighter ochreous, unmarked. *Abdomen* (see fig. 1) uniformly dark brown above; uniformly ochreous below, except that the swollen bases of the valves of the ovipositor (*gs*) are shining black. The anal cerci (*i. e.*, the dorsal valves of the ovipositor) are very short, being very little longer than the tenth tergite: the ninth tergite is nearly three times as long as the tenth and considerably longer than the eighth. *Legs* brownish, tips of femora darker; claws each with a single tooth. *Wings* hyaline, iridescent; stigma light brown, but distinct; no other markings.  $Sc_1$  ends in costa at about two-fifths of the distance from the base to the apex of  $Rs$ ;  $Sc_2$  more than twice its own length distant from the tip of  $Sc_1$ .  $Rs$  arising well beyond the middle of the wing, gently curved at its base, not much more than half as long as  $R_{2+3}$ .  $R_1$  turned sharply up to the costa at the marginal cross-vein.  $R-M$  cross-vein present.  $Cu_1$  meeting  $M$  either just before, at, or just after the fork; cell 1st  $M_2$  twice as long as its average breadth, not quite as long as cell  $M_1$  or 2nd  $M_2$ . *Halteres* with light stem and blackish knob.

Length of body 7.5 mm.; wing 8 mm.

1 ♀, Arisan, 10. x. 1912 (*I. Nitobe*); 1 ♀, Horisha, v. 1913 (*M. Maki*).

Perhaps most nearly allied to *D. alta*, Meij., but certainly distinct. The species of this group, which seems to be numerously represented in the Oriental Region, approach *Limnobia* in the lengthened  $Sc_1$  and make the distinction between the two genera rather uncertain.

*Geranomyia septemnotata*, sp. n.

*Head* blackish grey; eyes nearly contiguous above and absolutely so below. Proboscis black, a little longer than the head and thorax together. Antennæ missing. *Thorax* reddish brown above; three rather narrow dark brown stripes

on the præscutum, the lateral pair commencing at the pseudosuture and extending also over the scutum. Scutellum with an indistinct darker central line. Pleuræ ochreous. Prothorax dark brownish. *Abdomen* dark brown above, venter and ovipositor ochreous. Tenth tergite longer than the eighth and ninth together, but shorter than the anal valves, which project slightly beyond the tip of the ventral (ninth sternal) valves of the ovipositor. *Legs* uniformly light brownish. *Wings* with a slight brownish tinge; the seven dark costal spots, also the other markings and the venation, as in *G. avocetta*, Alex. *Halteres* blackish, stem lighter.

Length of body (without proboscis) 5.5 mm.; wing 6 mm.

1 ♀, Arisan, 10. x. 1912 (*I. Nitobe*).

This insect, though very close to *G. avocetta*, Alex., *G. semifasciata*, Brun., and *G. semistriata*, Brun., seems to be distinct from any of them.

*Limnobia nitobei*, sp. n. (Pl. XII. fig. 2.)

*Head* blackish, grey-dusted; rostrum, palpi, and antennæ black, the second antennal joint partly ochreous; flagellar joints oval, hairs as long as the joints. *Thorax*: neck and prothorax yellowish. Præscutum ochreous, somewhat shining; a broad blackish stripe along each side-margin, nearly interrupted at the pseudosuture, but not reaching the front; two lines of black hairs. Scutum occupied almost entirely by two blackish spots. Scutellum shining blackish, yellowish in the middle towards the base. Postnotum dark brownish, pleuræ mainly so. *Abdomen* ochreous, the segments with dark brown basal bands, ill-defined but broad. Genitalia (fig. 2). *Legs*: coxæ ochreous. Femora ochreous; tips black; another rather narrower black ring at the base of the apical third. Tibiæ ochreous, with black tips. Tarsi black, base of first joint ochreous. Claws with one distinct tooth near and some bristles at the base. *Wings* with a slight yellowish tinge and rather numerous brown clouds, which occur over the tips of most of the veins, also over the base of Rs, over the cross-veins, and in the basal and inner marginal cells. Sc<sub>2</sub> at tip of Sc<sub>1</sub>. R<sub>1</sub> ending in the costa some distance beyond the marginal cross-vein. Rs arising just beyond the middle of the wing, rather strongly arched. Base of cell M<sub>1</sub> nearer wing-base than that of cell 2nd M<sub>2</sub>. Cu<sub>1</sub> joining M before the fork. *Halteres* ochreous.

Length of body 7 mm.; wing 7.5 mm.

1 ♂, Arisan, 10. x. 1912 (*I. Nitobe*).

A small species somewhat resembling the European *L. flavipes*, F. It seems to have no near relative amongst the described Oriental species.

*Libnotes regalis*, sp. n.

*Head* missing. *Thorax* (damaged) ochreous, dusted over with yellowish grey; præscutum with four rather ill-defined blackish-brown yellowish-grey dusted stripes on the posterior half, and with a dark mark at the side towards the front; scutum with a pair of somewhat triangular dark spots; scutellum dark at each side. *Pleuræ* mainly dark, an ochreous spot on the upper half of the sternopleura. *Abdomen* missing. *Legs* ochreous; tarsi more brownish; a narrow and rather indistinct dark ring near the tips of the femora. Claws with three or four distinct teeth, the largest nearest the apex. *Wings* remarkable for having two adventitious cross-veins, placed in the cells  $R_{2+3}$  and  $R_{4+5}$  (submarginal and first posterior), the venation otherwise resembling that of the *L. pæciloptera* group:  $R_1$  ends in the costa a short distance beyond the marginal cross-vein;  $M_{1+2}$  forks beyond the middle of cell 1st  $M_2$ , which is nearly four times as long as its greatest breadth.  $Cu_1$  meets  $M_3$  halfway between the base of cell 1st  $M_2$  and the fork of  $M_{1+2}$ . *Ax* is strongly curved downwards at its tip. Ground-colour of wings yellow. A deeper yellow spot over the base of  $R_s$ , surrounded with a black border, from the lower edge of which a streak is emitted towards the base of the wing. Black streaks over many of the veins; a blackish spot on the wing-margin in the cell *An* and another at the anal angle. The cord and all the cross-veins, also the base of  $M_2$ , are broadly margined with black, though these veins themselves remain of the yellow ground-colour. *Halteres* with yellow stem and black knob.

Size of wing  $25 \times 6$  mm.; length of front leg 43 mm.; middle leg 40 mm.; hind leg 42 mm.

This is quite the most remarkable species yet described in this genus. It is unfortunate that the specimen, like some others in the collection, had been damaged by ants.

Taihoku (*T. Shiraki*). One specimen.

ANTOCHINI.

*Teucholabis nigerrima*, sp. n.

Head, thorax, abdomen, and legs entirely shining black, black-haired. Wings blackish, a pale streak in cell *Ax*.

Halteres black. Venation as in *T. fenestrata*, O.-S. Antennæ scarcely as long as the thorax, most of the flagellar joints globular, gradually decreasing in size towards the apex of the antennæ, last three or four joints more elongate.

Length of body 10 mm.; wing 9 mm.

Horisha, 10. v. 1913 (*M. Maki*), 1 ♂; Taihoku (*T. Shiraki*), 1 ♂.

*Gymnastes ornatipennis* (de Meij.).

Arisan, 10. x. 1912 (*I. Nitobe*), 2 ♀.

I have recently (*Ann. & Mag. Nat. Hist.*, May 1916, p. 359) suggested that this species be transferred from *Gnophomyia* to *Gymnastes*. In the paper referred to I mentioned a specimen from Japan which is in the British Museum collection. This specimen was taken at Idzu, vi. 1910 (*S. Akiyama*); it differs from typical *ornatipennis* in having the basal wing-fascia broader and extending from the costa to the hind margin; the first mid-tarsal joint is yellowish with a black tip, instead of all black, and the basal two-thirds (not half only) of the first hind tarsal joint is yellow.

*Dasymallomyia signata*, Brun.

Horisha, 10. v. 1913 (*M. Maki*), 1 ♀.

I am not convinced that Alexander is justified in sinking this genus under *Gnophomyia*; it seems to me it might with almost equal reason be included in *Teucholabis*. The name had, therefore, better be allowed to stand at least until the Oriental species are better known. Brunetti did not describe the antennæ. In this specimen the flagellar joints are rather shortly oval, two or three at the base round; they are provided with a verticil of long hairs, nearly three times as long as the joint, just before the middle; the base is yellowish, the remainder dark.

*Antocha* sp.

Horisha, 10. v. 1913 (*M. Maki*), 1 ♀.

Very much like the European species, and may, perhaps, be the same, but the thorax is without any trace of darker stripes, and the scutellum is grey instead of ochreous. Since it is still uncertain whether the European species is or is not the same as the North-American *A. opalizans*, I refrain from naming this specimen.

*Atarba pallidicornis*, sp. n.

Head dull, pale yellow. Antennæ wholly pale yellow;

first scapal joint not longer than the second; flagellar joints rather elongate-oval, all about equal in length, with scattered light brownish hairs; whole antenna about as long as the head and thorax together. *Thorax* moderately shining. Prothorax pale yellow. Præscutum rather dark brown, with a broad pale yellow median stripe from the front margin almost to the suture; the dark colour at the sides does not quite reach the front. Scutum, scutellum, and postnotum almost wholly brown, the first-named with a small yellowish spot just behind the suture. Pleuræ wholly pale yellow. *Abdomen* pale yellowish, hind margins of tergites 1-5 brown. *Legs* yellowish, femora and tibiæ narrowly black at the tips; tibiæ without any trace of spurs\*. *Wings* with both membrane and veins pale yellowish. Venation much as in *A. flava*, Brun., but  $Sc_1$  a little longer and cells  $M_1$  and 2nd  $M_2$  rather shorter;  $M_2$  and  $M_3$  rather more divergent. *Halteres* pale yellowish.

Length of body or wing 6 mm.

Arisan, 10. x. 1912 (*I. Nitobe*), 1 ♀.

*Atarba fuscicornis*, sp. n.

*Head* shining ochreous. Antennæ wholly blackish, a little shorter than in *A. pallidicornis*, last few flagellar joints distinctly shorter than those at the base. Latella yellowish, palpi black. *Thorax* shining. Præscutum and scutum ochreous in the middle, blackish brown at the sides up to the front margin. Scutellum ochreous. Postnotum brownish. Pleuræ ochreous. *Abdomen* dark brownish above, ovipositor and venter ochreous. *Legs* uniformly yellowish, tibiæ without spurs. *Wings* almost hyaline, veins yellowish; venation as in *A. flava*, Brun., except that  $R_s$  is more arched at the base. *Halteres* ochreous.

Length of body 5.5 mm.; wing 6 mm.

Arisan, 10. x. 1912 (*I. Nitobe*), 1 ♀.

ERIOPTERINI.

*Gnophomyia orientalis*, de Meij.

Arisan, 10. x. 1912 (*I. Nitobe*), 1 ♀.

This species, which I think must be correctly named, agrees with *G. nigrescens*, Edw., in coloration and venation,

\* An African species recently described by Riedel as *Leiponeura jeanneli* (represented in the British Museum) has small but distinct tibial spurs.



but differs in the shorter ovipositor, the rather more conspicuous hairs on the veins, and the finer microscopic hairs on the surface of the wings.

*Gnophomyia similis*, sp. n. (Pl. XII. fig. 3.)

Differs from *G. orientalis* as follows:—Ovipositor much longer and straighter, the anal valves more than twice as long as the ninth and tenth tergites together;  $Cu_1$  meeting M well beyond the middle of cell 1st  $M_2$ ; microscopic hairs on the wing-surface finer, scarcely visible as dark dots under a magnification of 80.

Length of body 6 mm.; wing 6.3 mm.; ovipositor 1 mm.  
Arisan, 10. x. 1912 (*I. Nitobe*), 1 ♀.

*Molophilus costalis*, sp. n.

*Head* yellow; proboscis and palpi black; antennæ with the first four or five joints yellow, remainder brownish; flagellar joints oval, with long hairs near the base and shorter ones near the apex. *Thorax* dull light reddish ochreous above, margins of mesonotum yellow; pleuræ ochreous brown, rather shining. *Abdomen* rather light brownish ochreous; lateral line and seventh tergite somewhat darker; ovipositor bright ochreous. *Legs* ochreous; tarsi and tips of tibiæ blackish brown. *Wings* greyish, whitish at the base; costa and wing-tip with yellow hair; hair on remaining veins and fringe dark grey. Bases of cells  $R_2$  and  $M_3$  at practically the same level. *Halteres* yellow.

Length of body or wing 4 mm.

Arisan, 10. x. 1912 (*I. Nitobe*), 3 ♀.

*Erioptera (Erioptera) insignis*, sp. n.

*Head* blackish, with a whitish-grey border to the eyes. Proboscis pale, palpi and antennæ dark brown. Antennæ about as long as the thorax; basal flagellar joints oval, last few elongate. In the male the flagellar joints bear very long hairs on the upper side, shorter ones below; in the female the hairs are much shorter. *Thorax* rather dark reddish brown, without distinct markings; pleuræ with a bluish-grey sheen, especially when looked at obliquely from above. *Abdomen* dark brown above, genitalia and venter ochreous. The male hypopygium rather closely resembles that figured by de Meijere for *E. notata*. *Legs* ochreous brown; femora with a rather indistinct dark brown ring just before the tip. *Wings* with a slight greyish tinge; the cord and  $Cu_1a$  rather

indistinctly dark-bordered. Base of cell  $R_2$  markedly nearer the wing-base than that of cell  $M_3$ ;  $Cu_1 + M_3$  nearly twice as long as  $R_{2+3}$ . *Halteres* with pure white stem and dark brown knob.

Length of body or wing 4.5–5 mm.

Arisan, 10. x. 1912 (*I. Nitobe*), 1 ♂, 1 ♀; also 1 ♂ in British Museum from Tokyo, Japan (*C. H. B. Wood*).

This species differs slightly from *E. notata*, de Meij., and *E. javanensis*, de Meij., in venation; it resembles the latter in coloration, but the tips of the femora and tibiæ are not white.

*Erioptera (Erioptera) alboguttata*, sp. n.  
(Pl. XII. fig. 4.)

*Head* yellow; proboscis, palpi, and antennæ black. Antennæ not much longer than the head, flagellum very slender, with rather short hairs. *Thorax*: pronotum yellowish. Mesonotum ochreous brown, rather darker on the margins. Pleuræ light ochreous, with an ill-defined dark brown longitudinal stripe in the middle, ground-colour rather darker below this stripe. *Abdomen* dark brown, genitalia (fig. 4) orange. *Legs* entirely yellow (front legs and hind tibiæ and tarsi missing). *Wings* brown, costa yellowish. A white spot over the base of  $R_s$ ; a white band over the cord; a large white spot on the costa just beyond this; five or six smaller white spots on the margin round the apical part of the wing, and another white spot over the apical half of cell, 1st  $M_2$ , and the bases of cells  $M_1$  and 2nd  $M_2$ .  $Cu_1 + M_3$  nearly three times as long as  $R_{2+3}$ . Cell 1st  $M_2$  open on one wing, closed on the other.  $Cu_1a$  slightly recurrent (*i. e.*, inwardly oblique), joining  $M_3$  a little beyond the fork.

Length of body 3 mm.; wing 3.5 mm.

Arisan, 10. x. 1912 (*I. Nitobe*), 1 ♂.

This is a most interesting species, since its venation would place it, according to Osten-Sacken's table, in the subgenus *Erioptera*; whereas in its spotted wings and recurrent  $Cu_1a$  it is clearly related to *Mesocyphona*. The discovery of this species adds support to Alexander's view that *Mesocyphona* should not be regarded as more than a subgenus of *Erioptera*. Williston's *E. annulipes* from St. Vincent is another species of this group.

*Gonomyia (Lipophleps) nebulosa* (de Meij.).

· Arisan, 10. x. 1912 (*I. Nitobe*), 2 ♀.

An immature male taken at the same time and place may also belong here.



*Conosia irrorata*, Wied.

Kotosho Island, 5. vii. 1912 (*T. Shiraki*), 1 ♀.

## LIMNOPHILINI.

*Ephelia fascipennis*, Brun.

Arisan, 10. x. 1912 (*I. Nitobe*), 1 ♀.

The specimen corresponds fairly well with Brunetti's description and figure, but the minute dots on the wing are more numerous, and the dorsum of the thorax is grey with sharply defined spots and streaks.

## ANISOMERINI.

*Eriocera (Physecrania) unicolor*, de Meij.

Horisha, 1000 ft. (*M. Maki*), 1 ♂.

Agrees very well with de Meijere's description, which was based on a specimen from Simalur, N.W. of Sumatra.

*Eriocera (Androclosma) verticale*, Wied.

Taihoku (*T. Shiraki*), 1 ♀.

*Eriocera (Eriocera) sauteriana*, End.

Kotosho Island, 20. vii. 1912 (*T. Shiraki*), 1 ♂; Arisan, 10. x. 1912 (*I. Nitobe*), 1 ♀.

The male is much smaller and more slender than the female.

*Eriocera (Eriocera) rubriceps*, sp. n.

*Head* dull red, proboscis and palpi black; antennæ dark brown except for the reddish first joint. Front moderately swollen, a small pit at the top of the swelling. First antennal joint stout, less than twice as long as broad, second globular, third half as long again as the fourth, cylindrical. *Thorax*: præscutum and scutum velvet-black, the former with four inconspicuous leaden-coloured but slightly reddish-tinged stripes. Scutellum, postnotum, and pleuræ entirely dull reddish brown. *Abdomen*: first tergite reddish orange with a black hind border; second to fifth orange with black hind borders; sixth and seventh velvet-black; eighth (mainly hidden) and ninth dull orange; valves of ovipositor shining brownish; venter chiefly orange, except on the sixth and seventh sternites, which are blackish. *Legs* rather stout,

dark brownish, femora somewhat lighter towards the base. *Wings* almost uniformly dark brown. Cell  $R_2$  about three times as long as its stem, the marginal cross-vein placed at about a quarter of the distance between the base and tip of  $R_2$ . First section of  $M_{1+2}$  about as long as and almost in a line with the R-M cross-vein; a short stump arising from the junction.  $Cu_1$  meeting  $M_3$  just before the middle of cell 1st  $M_2$ , which is not much longer than broad. *Halteres* black.

Length of body 21 mm.; size of wing  $18 \times 5.8$  mm.

Taipin, 12. x. 1910 (*T. Shiraki*), 1 ♀.

The nearest ally of this species is *E. scutellata*, Edw., from Ceylon, but the resemblance is not very close. Compare with *Longurio rubriceps*, described below (p. 261).

#### AMALOPINI.

*Rhaphidolabis brunettii*, nom. n.

(*Gnophomyia aperta*, Brun. Fauna Brit. Ind., Nemat. p. 492;  
nec *G. aperta*, Coq.)

Arisan, 10. x. 1912 (*I. Nitobe*), 1 ♀.

#### TIPULINÆ.

#### CTENOPHORINI.

*Pselliophora divisa*, Brun.

This species was described by Brunetti (Rec. Ind. Mus. vi. p. 242) from a single female from the "East Indies." The British Museum possesses a male from Sikkim, May 1896, 2000 ft. (*J. G. Pilcher*), and a female from Bhutan (purchased from Rosenberg). The male differs from the female in having the hind femora densely clothed with long black hair, a remarkable character for a member of this genus. In both sexes the uniformly red thorax is somewhat shining; the last four abdominal segments and the genitalia are uniformly dull deep black. The *lam. term. inf.* of the male hypopygium is serrate all along its dorsal margin.

*Pselliophora speciosa*, sp. n.

A male in the British Museum from the Khasi Hills, Assam (purchased from E. Heyne), is evidently allied to *P's. divisa*, particularly in regard to the densely hairy hind femora and the genitalia; it differs, however, as follows:—Thorax uniformly black, considerably shining; fifth abdo-

minal segment rather narrowly red at the base; *lam. term. inf.* of hypopygium of different shape and differently toothed.

Though at first sight this might easily be mistaken for *Ps. ctenophorina*, it differs considerably in the genitalia and also in the shining thorax, the long hair on the hind femora, and the narrow white rings on the tibiæ.

*Pselliophora ctenophorina*, Riedel.

1 ♂, Kuskus, 25. v. 1908 (*I. Nitobe*); also 1 ♂ in British Museum from Koannania, S. Formosa, 15. vi. 1906 (*A. E. Wileman*).

The Kuskus specimen agrees very well with Riedel's description (*Ent. Mitt.* ii. 1913, p. 274), except that the last joint of the palpi is white with the tip black. In the Koannania specimen the palpi are missing, but the wings are yellowish brown as described by Riedel for the female of *Ps. ctenophorina*. In both these specimens the thorax and the tip of the abdomen are dull black, a point of some importance not mentioned by Riedel.

*Pselliophora semirufa*, sp. n.

*Head* velvet-black, antennæ and palpi black (last joint of palpi missing). None of the antennal joints are distinctly enlarged on the underside; the third joint is about as long as the first, the fourth half as long as the third and a little longer than the fifth. *Thorax* uniformly velvet-black. *Abdomen* with the first three segments entirely reddish orange; middle part of fourth sternite and a rather broad narrowly interrupted basal band on the fourth tergite of the same colour; remainder of fourth and the whole of the fifth to eighth segments velvet-black; ninth segment and ovipositor shining black. *Legs* black; hind femora orange on the basal third; front and hind tibiæ with a narrow white band near the base (middle legs missing). *Wings* blackish brown; a yellow area across the bases of the basal cells, divided by the dark veins which cross it; two large somewhat oval yellow spots, almost united, occupying the apical third of the basal cells, the upper one extending into the inner marginal cell; a small yellow streak below  $Cu_2$ ; whitish patches in the centres of cells An and Ax. Cell  $M_1$  just sessile;  $Cu_1$  rather strongly curved downwards at the tip, so that at the wing-margin the cell  $M_3$  is twice as wide as the cell  $Cu_1$ . *Halteres* black, base of stem brownish.

Length of body 17 mm.; wing 17 mm.

Taihoku, xi. 1909 (*I. Nitobe*), 1 ♀.

This species is nearly allied to *Ps. ctenophorina*, Riedel, and *Ps. fumiplena*, Wlk., but is certainly distinct from both; there is a slight structural difference in the antennæ: Riedel describes those of *Ps. ctenophorina* as approaching those of *Prionocera* in structure, the flagellar joints being elongated on the underside; in *Ps. fumiplena* this is true of the third and, perhaps, the fourth joints, though not of the remainder. In regard to coloration, *Ps. semirufa* is also well distinguished; from *Ps. ctenophorina* in the blotched wings and the narrower white rings on the tibiæ; and from *Ps. fumiplena* in the more extensive wing-markings and the greater amount of red on the abdomen. It is worth mentioning in this connection that *Ps. fumiplena* as described by Osten-Sacken appears to consist of three allied species, two of which are briefly characterized below under the names *flavibasis* and *sackeni*.

*Pselliophora fumiplena*, Wlk.

The British Museum series of this species consists of three males and five females, all labelled "North China"; they were all seen by Osten-Sacken, who quite correctly noted the variability in the wing-markings and in the amount of red on the third and fourth abdominal segments. In all the specimens the legs are black, all the tibiæ carrying conspicuous white subbasal rings; the fifth and following segments of the abdomen are entirely black; the base of the wing is entirely blackish, except in one specimen, which has some rather inconspicuous yellow streaks in this position; the male antennæ are entirely black; the third joint of the female antennæ is rather distinctly produced below towards the tip; the halteres are black.

The pair of bare black plates (*lam. term. inf.?*) visible about the middle of the hypopygium when seen in end-view are produced at their upper and inner corners into a long tooth-like process. In *Ps. flavibasis* and *Ps. sackeni* the hypopygium has an almost identical structure; *Ps. ctenophorina* is very similar, but the tooth-like process is very short, and there are some other differences.

*Pselliophora flavibasis*, sp. n.

There are three specimens in the British Museum collection: a male from Nagasaki, S. Japan, May 1886 (*Leech*); a female from Lu-huang Island, Chusan Archipelago, May (*J. J. Walker*), and a second female simply labelled "China," which I regard as distinct from *Ps. fumiplena*. Only one of

these specimens, and that the least perfect, was seen by Osten-Sacken. All three show the following differences from Walker's species:—The wings are broadly yellow near the base, the yellow colour extending to about a third of the wing-length along the costa, though not so far along the hind margin; the extreme wing-base, however, remains black; the tibiæ are much more brownish, so that the white rings are much less clearly defined—in fact, in two of the specimens they are practically absent. In the male the femora as well as the tibiæ are for the most part yellowish brown, as is the central axis of the antennæ. The third antennal joint of the female is not distinctly produced below. The wing-markings, apart from the basal yellow patch, are rather more developed than in the most strongly marked specimens of *Ps. fumiplena*. Halteres light brown (♂) or blackish (♀).

*Pselliophora sackeni*, sp. n.

Two males and a female labelled "China" (*Bowring*) were briefly described by Osten-Sacken (*Berl. ent. Zeitschr.* xxx. p. 171), who somewhat doubtfully regarded them as a variety of *Ps. fumiplena*.

*Head* dark brownish, with yellowish-brown hair; antennæ reddish, except for the appendages of the male flagellum, which are blackish. *Thorax*: prothorax wholly or partly brownish orange. Mesonotum brownish orange, with a narrow blackish-brown border; scutellum blackish brown. Postnotum mainly brownish orange. Pleuræ blackish brown, with one or two brownish-orange spots. *Abdomen*: first segment black; second to seventh segments each orange with a black triangle on the posterior margin, that on the second segment rather small, the rest larger, and except that on the third segment reaching the anterior margin. Hypopygium mainly brownish orange, the tip blackish. *Legs*: coxæ partly blackish, especially the front half of the hind pair, otherwise brownish orange; femora, tibiæ, and first tarsal joints entirely orange, except their extreme tips, which are blackish; the bases of the tibiæ are somewhat lighter, but without distinct pale rings; remainder of tarsi dark brown. *Wings* as in *Ps. flavibasis*, but the yellow at the base extends halfway along the costa. *Halteres* rather light brownish.

Brunetti's *Ps. bifascipennis*, described from a female from Shanghai, is evidently related to this species, but has brown stripes on the mesonotum.

## TIPULINI.

*Tipula shirakii*, sp. n.

*Head* dark slate-grey, a narrow pale margin behind the eyes, lower part of front grey-dusted. Front one-sixth of the width of the head, not in the least swollen above the antennæ. Rostrum and palpi dark brown, black-haired like the occiput. Antennæ barely two-thirds as long as the thorax, thirteen-jointed. First joint brownish towards the base, more ochreous apically, second joint ochreous. Third joint a little more than half as long as the first, light brown at each end, darker in the middle. Joints 4-11 all about equal in length, light brown, the slight basal enlargement blackish brown and bearing three long and one or two short hairs; the long hairs are not much longer than the joint. Twelfth joint two-thirds as long as the eleventh, thirteenth half as long as the twelfth. *Thorax*: pronotum brownish. Præscutum bare, greyish brown, more grey towards the margins, with scarcely perceptible indications of four darker stripes; the entire margin narrowly blackish brown, most noticeably so in front; a pair of small connected blackish-brown spots immediately before the suture in the middle. Scutum greyish brown, bare. Scutellum greyish brown, with short scanty yellowish hairs, and with two rather large and only narrowly separated black spots on its apical half. Postnotum brownish grey, with rather dense, short, yellowish pubescence. Pleuræ ochreous, somewhat darker above; an ill-defined blackish-brown stripe passes from the hind corner of the præscutum, just under the wings and across the hypopleura, connecting the dark margin of the præscutum with the dark lateral abdominal stripe. *Abdomen* dark brown above, a rather broad but ill-defined blackish lateral stripe, indistinct on the last few segments; hind margins of tergites narrowly pale; venter ochreous. Ovipositor normal, shining brown, bare. *Legs* brownish ochreous, tips of femora broadly, of tibiæ and first two tarsal joints narrowly, blackish; last three tarsal joints black. *Wings* light brownish; costal cell and stigma darker brown; a brown spot in cell  $Cu_2$  below the middle of cell  $M$ ; a brown cloud in cell  $M$ , placed on  $Cu$  a little distance before the fork; wing-membrane on each side of the former of these spots and on the basal side of the latter lighter; a larger light patch covering the cell 1st  $M_2$  and extending upwards to the stigma and outwards to the base of the cell  $M_1$ . Veins (except  $R$ ) quite bare.  $Rs$  a little longer than  $R_{2+3}$  and about twice as long as  $R_2$ ; stigma



as long as  $R_{2+3}$ .  $R_{4+5}$  ends either in the wing-tip or just below it. Cell  $M_1$  three times as long as its petiole.  $Cu_1$  in punctiform contact with  $M_3$ . Cell  $Cu_1$  at its tip slightly wider than cell  $M_3$ . Cell  $Ax$  rather broad, slightly broadest in the middle. *Halteres* dark brownish, tip of knob lighter.

Length of body 26 mm. ; size of wing  $24 \times 6$  mm. Length of hind femur 16 mm., hind tibia 18.5 mm. ; first hind tarsal joint 20 mm.

Arisan, 8000 ft., 10. x. 1912 (*I. Nitobe*), 1 ♀ ; also 1 ♀ from Khasi Hills, Assam (purchased from E. Heyne), in British Museum Collection. The latter specimen differs chiefly in that  $R_{4+5}$  ends just below instead of at the wing-tip.

This interesting species belongs to the same group as the European *T. fulvipennis*, Deg., and has a considerable resemblance to *T. demijerei*, Edw., recently described from New Guinea. This latter differs in the dark postnotum and broader wings, as well as in other characters. A species described, but not named, by de Meijere (*Tijd. v. Ent.* liv. p. 71) must resemble this species closely, but seems to be different again.

*Tipula coquilletti*, End.

Arisan, 10. x. 1912 (*I. Nitobe*), 1 ♂.

Agrees quite well with Japanese specimens in the British Museum.

*Tipula rufomedia*, sp. n. (Pl. XII. figs. 5-7.)

*Head* velvet-black, rostrum somewhat shining at the sides ; palpi and antennæ dull black, only the second antennal joint somewhat reddish-tinged. Antennæ alike in the two sexes, about as long as the thorax, 13-jointed, but the last joint very small and indistinct ; remaining flagellar joints all about equal in length, oval-cylindrical, with a very slight basal enlargement, and with three long and one or two shorter verticillate hairs, the long hairs being about half as long again as the joints ; pubescence fine, whitish, a little longer on the under surface of the flagellum. First scapal joint rather long, nearly smooth, enlarged apically. Rostrum scarcely as long as the head, nasus well-developed, with rather long black hair. *Thorax* uniformly velvet-black, nearly bare. *Abdomen* with the first segment velvet-black beneath and at the sides, orange above ; second to fifth segments orange-red, black-haired, apical corners of the fifth tergite and an indistinct lateral line on the third and fourth black ; sixth to ninth and genitalia entirely velvet-black.

Ninth tergite of male (fig. 5) broad, pointed, rather shining apically, tip with a single blunt median tooth. Pleurites thick, clothed with dense black hair; claspers (fig. 6) almost hidden by the projecting pleurites. Ninth tergite of female (fig. 7) broadly and deeply emarginate; anal valves very short, fleshy; valves of ovipositor very short. The abdomen in both sexes is short and rather stout, that of the female being rather broader but not longer (in proportion) than that of the male. *Legs* blackish, slender, the first tarsal joints not much longer than the tibiae. *Wings* slightly and uniformly infuscated; stigma distinct, yellowish brown. Tip of  $R_1$  present, but uncoloured.  $R_s$  short, less than twice as long as the stigma, twice as long as  $R_{2+3}$  or  $R_2$ , and about equal in length to  $R_3$ .  $R_3$  and  $R_{4+5}$  nearly straight, the latter ending just above the wing-tip. Basal deflection of  $R_{4+5}$  very short, shorter than the R-M cross-vein. Cell  $M_1$  almost parallel-sided, nearly three times as long as its petiole. A short M-Cu cross-vein present. Cell Ax broad, broadest in middle, extended a short distance beyond the base of the basal cells.

Length of body 11 mm.; abdomen 6 mm.; wing, ♂ 15, ♀ 17.5 mm.

2 ♂, Horisha (*M. Maki*); 1 ♀ in British Museum from Formosa (*A. E. Wileman*), without exact locality.

This is one of the most strikingly coloured species of *Tipula* I have seen, and it is surprising that it should not have been described before. Its only near allies seem to be *T. melanomera*, Walk., from Nepal, *T. cinereifrons*, de Meij., from the Malayan region, and the new species described below. Both the former have an entirely reddish thorax. These four species form a very distinct group, distinguished by the short stout abdomen and the remarkable female hypopygium, with its short fleshy anal valves and its very short ovipositor. (The anal valves in most species of *Tipula* form the ensiform appendages, which are usually spoken of as the dorsal valves of the ovipositor.) It might be justifiable to remove these species from *Tipula*; but, as I can see no character, apart from those of the genitalia, on which to base a generic distinction, I refrain from doing so.

*Tipula rufizona*, sp. n. (Pl. XII. fig. 8.)

A single female specimen in the British Museum Collection from Chin-Fu-San, W. China (*W. A. Maw*), represents a species which is evidently closely allied to *T. rufomedia*, but is certainly quite distinct. It differs from *T. rufomedia* as

follows :—Thorax not entirely velvet-black ; the præscutum with four blackish-grey stripes, separated by three equally broad stripes of the velvet-black ground-colour, the middle pair of grey stripes reaching the front margin and attenuated behind at the suture ; scutum and scutellum dull black without any velvety appearance. The orange colour of the abdomen is confined to the upper part of the first tergite, the whole of the second segment, the middle part of the third sternite, and narrow transverse bands at the bases of the third and fourth tergites. The ninth tergite is much smaller and less deeply emarginate, and the lobes of the ninth sternite (fig. 8) are much larger. Wings and legs as in *T. rufomedia*.

Length of body 14 mm. ; wing 17·5 mm.

*Longurio rubriceps*, sp. n. (Pl. XII. fig. 9.)

*Head* dull red ; antennæ, palpi, labella, nasus, and sides and under surface of rostrum black. Rostrum very short, only about half as long as the head, nasus as long as the rostrum itself. Front rather swollen above the antennæ. First antennal joint scarcely twice as long as broad ; second globular, a little broader than the first ; third about the size and shape of the second ; fourth and fifth nearly globular, diminishing in size ; remainder slender and clothed with long hairs, the joints ill-defined. *Thorax* uniformly velvet-black, the mesonotum very much arched forwards over the head. *Abdomen* : first segment velvet-black, with a reddish area near the tip ; second orange, narrowly black at the base and apex ; third, fourth, and fifth orange, with a narrow black apical margin ; sixth black, orange on the basal third ; seventh, eighth, and genitalia (fig. 9) velvet-black. *Legs* : coxæ velvet-black ; trochanters dark brown ; rest of legs yellowish brown, the tarsi and the tips of the tibiæ darker. Tibial spurs apparently absent ; tarsi very long and slender, the first joint nearly twice as long as the tibiæ. *Wings* blackish brown ; a small clear streak in the upper basal cell and another in the cell An. Stigma oval, rather darker than the ground-colour. Sc<sub>1</sub> present, but rather slender, nearly vertical. Rs nearly twice as long as the stigma, and a little longer than R<sub>2+3</sub>, which, in its turn, is just over twice as long as R<sub>2</sub>. Cell M<sub>1</sub> petiolate, a little longer than its petiole. Cu<sub>2</sub> in punctiform contact with M<sub>3</sub>. *Halteres* black.

Length of body 17 mm. ; wing 16 mm. ; hind femur 11 mm. ; hind tibia 11 mm. ; first hind tarsal joint 21 mm. ; remainder of hind tarsus 8 mm.

The two previously described species of this genus are both

from the North-American continent. The new species differs from *L. minimus*, Alex., in coloration, in the longer radial sector, and in the absence of a distinct M-Cu cross-vein; it resembles Alexander's species in the long petiole of the cell  $m_1$ .

The coloration of this species is so very different from that of a normal Tipuline, and so remarkably like that of *Erioceera rubriceps* (described above, p. 253), that it is almost impossible to believe that the resemblance between these two can be merely accidental. Possibly both may be mimics of a hymenopteron.

Shinten, 400 ft. (*T. Shiraki*), 1 ♂.

*Longurio fulvus*, sp. n.

The British Museum possesses two females of another very distinct species of *Longurio* from North China (Coll. Fortune, purchased from Stevens in 1856). It will be convenient to describe them here under the above name.

Body wholly dull orange-ochreous, with the following exceptions:—Palpi black; flagellum of antennæ dark brown; last abdominal segment and ovipositor black; a rather narrow interrupted black median line on the venter; legs dark brownish; wings brownish-tinged, but not so dark as those of *L. rubriceps*, hence the stigma is more conspicuous. Structural characters very similar to those of *L. rubriceps*, but the third, fourth, and fifth antennal joints are more oval;  $Sc_1$  is more oblique, the cell  $M_1$  is about twice as long as its petiole; and the tarsi are not quite so long (this last character may vary with sex). In one specimen  $Cu_1$  is just in contact with  $M_3$ , in the other a distinct M-Cu cross-vein is present.

Length of body 18 mm.; wing 18 mm.; hind tibia 11 mm.; first hind tarsal joint 18 mm.

BRITHURA, gen. nov. (Pl. XII. figs. 10-12.)

Antennæ not longer than the thorax, 13-jointed, the flagellar joints with long verticillate hairs at the base, two above and one below. Rostrum as long as the head, with distinct nasus. Fourth palpal joint thin, as long as second and third together. Front with a sharp-pointed conical elevation just above the antennæ. Body very stout; ninth abdominal tergite in the male turgid, claspers rather narrow, twisted, projecting beyond the ninth tergite and conspicuous from above. Legs not greatly elongated, first tarsal joints considerably shorter than the tibiæ; femora without apical comb; claws with a small tooth near the base; empodia well developed. Wings broad; a slight projection on the costa above the stigma, a

distinct though shallow emargination at the apex of  $Cu_2$ ; anal extended some way beyond the base of the basal cells.  $Sc_1$  distinctly reaching costa;  $Sc_2$  short, oblique, near tip of  $Sc_1$ .  $Rs$  rather short;  $R_2$  present;  $R_3$  nearly straight;  $R_{4+5}$  curved downwards, ending below the tip of the wing.  $R-M$  cross-vein absent or quite short. Cell 1st  $M_2$  pentagonal; cell  $M_1$  petiolate, the petiole hardly half as long as the cell.

Genotype, *Brithura conifrons*, sp. n.

This genus is distinguished from *Tipula* chiefly on account of the presence of  $Sc_1$ , which terminates distinctly in the costa. The combination of a number of other minor peculiarities gives the insects a very distinct facies. The venational character of the presence of  $Sc_1$  is not found, so far as I am aware, in any species of *Tipula* or in the related genus *Ctenacroscelis*; it does occur, however, in a number of species of *Holorusia* and *Macromastix*, but these genera are, in my opinion, less closely related to *Tipula*, since they are devoid of verticillate hairs on the antennæ.

*Brithura conifrons*, sp. n. (Pl. XII. figs. 10 & 11.)

*Head* dark velvet-brown, a light V-shaped mark between the frontal cone and the base of the antennæ; some short dark hairs above and long ones below. Rostrum uniformly dark brown. Palpi blackish, third joint lighter. Antennæ: first joint elongate, dark brown, black-haired; second joint cup-shaped, lighter brown, bare. Third joint nearly cylindrical, contracted at the base, blackish, about half as long as the first. Remaining flagellar joints (except the last two) all nearly equal in length to the third, dorsal surface straight, with a slight basal enlargement, ventral surface evenly convex; pubescence very fine, not more than one-sixth as long as the width of the joints; the three long verticillate hairs are almost three times as long as the joints, and there are, in addition, one or two shorter hairs at the base of each joint on the inner side. Twelfth joint a little shorter than the eleventh, thirteenth more than half as long as the twelfth; the hairs on these two joints all about equal in length. *Thorax* almost uniformly dark velvet-brown; mesonotum with three lighter brown stripes; front edge of hypopleuræ silvery grey when seen from behind. Scutellum, postnotum, and sides of præscutum rather thickly clothed with dark hair. *Abdomen* dark brown, slightly shining, hind corners of tergites grey; pubescence short, black; eighth and ninth segments and genital appendages wholly orange, with orange pubes-



cence, which is very dense on the eighth sternite and at the tip of the pleurite. The hypopygium (fig. 10) is very little wider than the rest of the abdomen and about as long as the sixth and seventh segments combined. *Legs* rather light brownish, tarsi darker, femora with a dark brown ring a little before the tip. *Wings* (fig. 11) with the ground-colour rather dark brownish grey; costal cell and area round the stigma yellowish; stigma rounded, blackish; a small spot over the base of  $R_s$ ; a dark cloud over and surrounding the cell 1st  $m_2$ . Pale markings distributed as follows:—A patch near the tip of the upper basal cell; a mark shaped something like the figures 80 conjoined occupying the apical half of the lower basal cell; a small spot near the base of cell  $Cu_2$ ; small streaks along An and Ax near their tips; a spot in cell  $R_3$  connected with a larger one in cell  $R_{4+5}$ ; small spots on the wing-margin in cells  $R_{4+5}$ , 2nd  $M_2$ ,  $M_3$ , and  $Cu_1$ , and two in cell An.  $R_s$  gently curved, as long as  $R_2$ ; marginal cross-vein joining  $R_{2+3}$  just before the fork; R-M cross-vein absent,  $R_{4+5}$  being fused with  $M_{1+2}$  for a short distance; M-Cu cross-vein present, but very short. *Halteres* with rather light brown stem; basal half of knob black, apical half dark grey.

Length of body 21 mm.; abdomen  $12.5 \times 2.5$  mm.; wing  $17.5 \times 5$  mm.

Arisan, 8000 ft., 10. x. 1912, 1 ♂ (*I. Nitobe*).

*Brithura crassa*, sp. n. (Pl. XII. fig. 12.)

I take this opportunity of describing under this name a single male specimen in the British Museum Collection which was purchased from Stevens in 1852 and is simply labelled "East Indies" (*i. e.*, India?). It differs from *B. conifrons* as follows:—Thirteenth antennal joint only one-third as long as the twelfth. Thoracic dorsum with the stripes scarcely perceptible, almost as dark as the ground-colour. Abdomen rather longer in proportion, the tergites darker laterally; hypopygium (fig. 12) dark brown like the rest of the abdomen, much longer than in *B. conifrons*; a remarkable downwardly projecting organ (? ninth sternite) on the underside; there is some orange hair at the base of the claspers, though not on the pleurite. Wing-markings similar, but there is no definite dark cloud over the discal cell; there is only a <-shaped mark in the lower basal cell, the apex of the < pointing towards the base of the wing; the pale spots along the wing-margin are rather more distinct, and there is an additional one present in the cell  $M_1$ .  $R_s$  half as long



again as  $R_2$ ; marginal cross-vein joining  $R_2$  near its base; R-M cross-vein distinct, but rather short;  $Cu_2$  just in contact with  $M_3$ . Costal hump rather more prominent.

Length of body 31 mm.; abdomen 21 mm.; wing 24 mm. Breadth of abdomen 3 mm.; hypopygium 4.2 mm.; wing  $24 \times 7$  mm.

The wing-markings of this species resemble those of *Tipula thibetana*, de Meij., rather closely, but from de Meijere's description and figures it is clear that his species is a true *Tipula*.

*Pachyrrhina citrina*, sp. n.

*Head* dull orange-yellow, a small vertical triangle and a very small spot at the upper corner of each eye dull brownish black; a patch on the upperside of the rostrum, including the nasus, brownish black, rather shining. Palpi dark brownish. Antennæ ochreous, the last seven or eight joints brownish; flagellar joints nearly cylindrical, with dark hairs, the first two joints without long hairs beneath, remainder with one. *Thorax* with the ground-colour dull lemon-yellow; pleuræ, scutellum, and postnotum unmarked. The three stripes on the præscutum shining leaden-black, narrowly bordered with velvet-black; the median stripe much broadened anteriorly and reaching the front margin; lateral stripes with a downwardly-bent portion in front which is velvet-black. A pair of velvet-black marks on the suture connecting the lateral stripes of the præscutum with a pair of large, shining, leaden-black spots on the scutum, which are velvet-black at each end. Pronotum with a small brownish mark at each side. *Abdomen* ochreous, with a broad, uninterrupted, though rather ill-defined blackish median stripe and narrower black lateral stripes; first segment wholly ochreous, seventh and eighth wholly blackish; ovipositor shining ochreous. *Legs* dingy brownish, tibiæ and tarsi darker. *Wings* with very slight greyish tinge; stigma light brownish, including a small patch of minute hairs; costal cell between  $Sc_1$  and the stigma yellowish.  $Sc_1$  present, but indistinct. Tip of  $R_1$  very indistinct.  $R_s$  normal, equal in length to the stigma or to  $R_{2+3}$  or  $R_2$ . Basal deflection of  $R_{4+5}$  twice as long as and in a line with the M-Cu cross-vein. Cell 1st  $M_2$  normal, elongate, the cross-vein closing it joining  $M_2$  a very short distance beyond the fork.

Taihoku (*T. Shiraki*), 1 ♀.

This is apparently the species described, but not named,

by de Meijere (Tijd. v. Ent. liv. p. 77, 1911). It is also nearly allied to *P. consimilis*, Brun., but seems to be distinct.

*Pachyrrhina virgata*, Coq.

Arisan, 8000 ft., 10. x. 1912 (*I. Nitobe*), 2 ♀.

There are some divergences from Coquillett's description which are probably due only to the difference of sex, Coquillett describing only the male. The female has been recorded, but not described, by Alexander (Can. Ent. xlv. p. 163). In the present specimens the abdomen is mainly dark brown above, the base and apex of the first segment, the ovipositor, the whole venter, and the margins of the tergites, especially towards the base of segments 2-4, being yellowish. In one specimen the dull brown spot at the tip of the lateral thoracic stripe is distinct, making the stripe appear bent downwards at the tip; in the other it is not distinctly so; this species would therefore seem to connect the group in which the lateral stripe is bent with that in which it is not.

*Pachyrrhina javensis*, Dol.

A male from Kotosho Island, near Formosa, 20. vii. 1912 (*T. Shiraki*).

Osten-Sacken and Brunetti have both referred to the small size of the discal cell as one of the distinguishing characters of this species. It may also be noted that in the present specimen and in a male from Trincomali, Ceylon (*Lt.-Col. Yerbury*), the radial sector is extremely short, shorter even than the descending portion of  $R_{4+5}$ , and only about half as long as the stigma. In some females from Ceylon which I refer with a certain amount of doubt to this species, the venation is similar except that  $R_s$  is not quite so short. In all these specimens a noteworthy feature, previously overlooked, is that the stigma is devoid of hairs. As in most of the species of this genus,  $Sc_1$  is present, though shorter than  $Sc_2$ ; the area of the costal cell between  $Sc_1$  and  $R_1$  is in this species concolorous with the dark stigma.

*Pachyrrhina parva*, sp. n.

*Head* entirely orange; upper surface of rostrum shining; front considerably swollen. *Antennae* a little longer than the head and thorax together, 13-jointed, the last joint minute; scape and first flagellar joint orange, remainder dark brown. Intermediate flagellar joints with well-marked basal enlargement and median emargination on the underside, upperside

slightly concave; pubescence nearly as long as the width of the joint. Palpi yellow. *Thorax*: pronotum entirely dull orange. Præscutum dull orange-ochreous, with the usual three shining stripes; the middle part only of these stripes is blackish, the dark colour shading off gradually into the orange ground-colour; there is, however, a sharply defined edge to the shining parts. The dark colour of the median stripe barely reaches the front margin. Scutum shining orange-ochreous, the usual dark spots absent; a black mark just above and in front of the root of the wing, extending a short distance along the suture. Scutellum and postnotum entirely shining orange-ochreous; pleuræ uniformly orange-ochreous, slightly shining. *Abdomen* almost entirely orange-ochreous, the only dark marking being an ill-defined blackish streak on the lateral margins of the second, third, and fourth tergites. *Legs* yellow, tarsi dark brown, tips of femora and tibiæ narrowly black. *Wings* almost hyaline, stigma no darker, devoid of hairs.  $R_s$ ,  $R_{2+3}$ , and  $R_2$  all about equal in length, descending portion of  $R_{4+5}$  not much shorter. Discal cell normal. Cell  $M_1$  petiolate. *Halteres* ochreous.

Length of body 8.5 mm.; wing 8 mm.

Arisan, 8000 ft., 10. x. 1912 (*I. Nitobe*), 1 ♂.

A very distinct species, owing to the small size and the unusual thoracic marking.

*Pachyrrhina formosensis*, sp. n.

*Head* missing. *Thorax* almost uniformly brownish ochreous, not particularly shining; the only dark marking is a blackish streak on each lateral margin of the scutum just above and in front of the wing-root. *Abdomen* dull yellow-ochreous, with broad median and narrow lateral black stripes. The median stripe extends almost continuously along segments 2-7, broadening out slightly on the posterior margins and being only narrowly interrupted near the bases of segments 2 and 3, segments 1 and 8 being entirely pale above. The lateral stripe extends from segments 1-8, is of even width throughout, and is narrowly interrupted behind the middle of segment 2 and before the middle of segments 3-6. Ovipositor brownish ochreous. *Legs* ochreous, tips of femora and tibiæ indistinctly darker, tarsi brownish. *Wings* slightly brownish-tinged, the stigma and the subcostal cell (but not the costal) dark brown; also an ill-defined brown margin to the apical part of the wing; a rather inconspicuous pale spot on each side of the stigma, which bears a few hairs; descending portion of  $R_{4+5}$  dark-margined and very

oblique.  $Sc_1$  incomplete. Rs equal in length to  $R_2$ , a little shorter than  $R_{2+3}$ , which in its turn is a little shorter than the stigma. Cell  $M_1$  sessile. Cell 1st  $M_2$  of the normal elongate shape.  $Cu_1$  fused with M for some distance, but leaving it again before the fork. Cell  $Cu_1$  at tip not much narrower than cell  $M_3$ . *Halteres* light brownish.

Length of thorax and abdomen 14.5 mm.; wing 14 mm.

Kammotu, 10. iv. 1910, 1 ♀ (*I. Nitobe*).

Although this specimen lacks the head, it seems worth while to describe it, owing to several peculiarities of coloration and one of venation—the fusion of  $Cu_1$  with M. *P. palloris*, Coq., has a very similar wing, but in that species the costal cell is dark and the thorax is distinctly striped, the lateral stripes having a velvet-black spot on each side of their anterior ends. *P. immaculata*, Wulp, has not been adequately described, but apparently differs in being of smaller size and in having the legs dark and last two abdominal segments black.

*Pachyrrhina sinensis*, sp. n.

A female specimen in the British Museum from N. China (*Fortune*) representing another new species allied to *P. palloris*, Coq., and *P. formosensis* may be described here.

*Head* dull orange; a small, triangular, shining, light brown spot on the vertex; rostrum shining brown, somewhat darker above. Palpi brownish. Scape of antennæ orange (flagellum missing). *Thorax*: pronotum dull, orange in the middle, brown at the sides. Mesothorax with the entire surface slightly shining, the postnotum more so. Præscutum brownish ochreous, with four darker brown stripes, the middle pair just connected in front of the suture, rather lighter in colour and less well-defined than the lateral pair. Scutum rather dark brownish, lighter in the middle, a velvet-black streak on each lateral margin, just in front of the wing-base, continued narrowly nearly halfway along the suture. Scutellum yellowish brown. Postnotum pale in the middle, brown at the sides. Pleuræ mainly pale ochreous; a rather broad but ill-defined brown stripe runs from the lateral stripe of the præscutum to the middle coxæ. *Abdomen* moderately shining, brownish ochreous; first segment dark above; segments 2–6 with large blackish-brown triangles on the posterior margin, second segment also with a brown spot near the base; hind margins of segments 7 and 8 narrowly brownish; blackish lateral stripes as in *P. formosensis*, except that they are rather broadly interrupted at the base of

the eighth segment. *Legs* as in *P. formosensis*. *Wings* as in *P. formosensis*, except that the base and the costal cell, as well as the subcostal, are dark brown; there is no pale spot beyond the stigma; the ascending part of  $Cu_1$  is dark-margined, and the cell  $M_1$  is shortly petiolate.

## EXPLANATION OF PLATE XII.

- Fig. 1. *Dicranomyia alticola*, sp. n. Apex of ♀ abdomen, side-view (from balsam preparation). × 35.  
 Fig. 2. *Gnephomyia similis*, sp. n. Apex of ♀ abdomen, side-view (from dry specimen). × 35.  
 Fig. 3. *Limnobia nitobei*, sp. n. ♂ hypopygium from below. × 35.  
 Fig. 4. *Erioptera albuguttata*, sp. n. ♂ hypopygium from below. × 35.  
 Fig. 5. *Tipula rufomedia*, sp. n. ♂ hypopygium from below. × 10.  
 Fig. 6. Ditto. ♂ right clasper, inner side-view. × 23.  
 Fig. 7. Ditto. Tip of ♀ abdomen from below. × 10.  
 Fig. 8. *Tipula rufizona*, sp. n. Tip of ♀ abdomen from below. × 10.  
 Fig. 9. *Longurio rubriceps*, sp. n. ♂ hypopygium from above (penis removed). × 13.  
 Fig. 10. *Brithura confrens*, gen. et sp. n. Tip of ♂ abdomen, side-view (dry specimen). × 5.5.  
 Fig. 11. Ditto. Apical half of wing. × 4.  
 Fig. 12. *Brithura crassa*, sp. n. Tip of ♂ abdomen, side-view. × 5.5.

XXIX.—*Descriptions of Eight new Species of Marine Mollusca from the South Shetland Islands.* By H. B. PRESTON, F.Z.S.

[Plate XIII.]

THE thanks of the author are due to Mr. A. G. Bennett, of the Falkland Islands, for the material described in the present short paper; when the difficulties of collecting in what is (even in the height of summer) an exceptionally rigorous climate, in great discomfort and without adequate apparatus, are taken into consideration, it will be readily appreciated how much Mr. Bennett was able to accomplish during his short stay at Deception Island in the summer of 1913-14.

*Limacina costulata*, sp. n. (Fig. 1.)

Shell discoidal, almost planulate above, with slightly exerted apical whorls, extremely thin, white, vitreous, transparent; whorls 4, the last large and produced below, *transversely costulate*: umbilicus deep, showing the coiling of the whorls; aperture broadly auriform.